REMARKS

Claims 32, 34-36, 38-40, 42, 43, 47, 49-51, 53-55, 57, 58, 61, 68-75, 83, and 84 are pending in the application.

Claims 32, 34-36, 38-40, 42, 43, 47, 49-51, 53-55, 57-58, 61, 83, and 84 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Klose (DD 284,905 A5). Applicant requests reconsideration.

Claim 32 sets forth a tantalum disc that includes, among other features, a maximum tantalum grain size of less than 50 microns at the disc surface. Page 3 of the Office Action maintains the same reasoning as stated in paragraph 6 of the previous Non-Final Office Action which acknowledged that Klose does not explicitly teach the claimed maximum grain size, but alleged that those of ordinary skill would expect the tantalum grains of Klose to inherently meet the claimed maximum grain size. Applicant asserts that the Office Action fails to establish prima facie obviousness.

Prima facie obviousness requires that all claim limitations must be taught or suggested by the prior art.

Applicant asserts that the Office's allegation of an inherent teaching of a maximum tantalum grain size less than 50 microns is not supported in the prior art nor by any other evidence. Page 4 of the Office Action alleges that Klose teaches "substantially similar processing steps." The Office Action

does not support such allegation with evidence showing that Klose and the present specification disclose processes that may be considered "substantially similar." Comparison of the Klose methods to those in the present specification reveals that they are significantly different and that Klose fails to disclose or suggest the specific process steps that enable obtaining the claimed maximum grain size less than 50 microns.

The primary description of processing steps in Klose appears on page 7 under the heading "Exemplified Embodiment." In summary, the Klose process involves upset forging, pressing into a sheet, cold mechanical working at room temperature, and recrystallization annealing. Page 6, lines 18-26 of the present specification states that upset forging (such as in Klose) may preclude producing products with uniform grain diameters as a result of strain non-uniformity. Without uniform grain diameters, a dispersion of widely varying grain diameters results and prevents adequate control of maximum grain size. In comparison, the present specification provides on page 7, lines 3-7 the use of "frictionless" upsetting to provide stress-strain uniformity. Frictionless upsetting is described in more detail throughout the present specification. Klose fails to recognize the deleterious effect of its conventional upset forging on obtaining a maximum grain size less than 50 microns.

Page 6, lines 11-17 of the present specification states that using cold rolling (such as in Klose) may produce a large deviation in grain diameters.

In comparison, the present specification discusses specific criteria for optimizing cold rolling on page 8, line 7 to page 9, line 18. The criteria are intentionally designed to provide uniform strain distribution during rolling by controlling roll diameter-to-billet thickness ratio, billet thickness-to-diameter ratio, and reductions per pass. Klose fails to recognize the significance of uniform strain distribution or any of the cold rolling process control criteria in the present specification that enable obtaining a maximum grain size less than 50 microns.

Page 7, lines 8-11 of the present specification and page 9, lines 19-31 further describe forging below the minimum temperature of static recrystallization and annealing at the minumum temperature of static recrystallization to provide the lowest dispersions of grain diameters. Klose fails to recognize the significance of the minimum recrystallization annealing temperature and, accordingly, does not use a method that provides for obtaining a maximum tantalum grain size less than 50 microns.

Page 7, lines 11-13, page 11, lines 23-30, and page 13, line 19 to page 14, line 7 describe a combination of forging, rolling, and annealing optimized to provide stress-strain uniformity and appropriate recrystallization to produce uniform structures with a maximum grain size less than 50 microns. Klose fails to disclose or suggest any of such considerations. The allegation that Klose and the present specification describe "substantially similar" processing steps clearly constitutes a gross over generalization, lacks a

basis founded in substantial evidence, and is otherwise untenable. At least for such reasons, Applicant asserts that Klose does not inherently disclose a maximum grain size of less than 50 microns.

Page 5 of the Office Action states that the Office can require Applicant to prove the prior art products do not necessarily or inherently possess the characteristics of the claimed tantalum disc. Applicant recognizes such requirement. However, such proof merely requires that the Applicant show that the Klose process possibly produces tantalum with a maximum grain size less than 50 microns. A mere showing that it is possible Klose produces a maximum grain size greater than 50 microns rebuts the Office's allegation that the tantalum in Klose necessarily has a maximum grain size less than 50 microns.

The mere fact that the tantalum in Klose might have a maximum grain size less than 50 microns is not sufficient to establish inherency. "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis added); MPEP § 2112. The Office Action does not provide sufficient evidence or technical reasoning to support the conclusion that the tantalum in Klose necessarily has a maximum grain size less than 50 microns. Instead, the Office Action relies upon a mistaken conclusion that

the present specification uses processing steps substantilly similar to those in Klose. Applicant establishes above that Klose and the present specification do not describe substantially similar processing steps.

The Office's allegations contradict the well known fact that grain sizes can be widely distributed and the maximum grain size can be many times larger than the average grain size. Applicant herewith cites US Patent App. Pub. No. 2003/0052000 A1 (Segal) documenting Applicant's assertions. At least paragraphs 30-34, 45, and 46 of Segal discuss and show the problems of a wide grain size distribution. Paragraph 33 states that tantalum "suffer from non-uniformity of grain sizes in the form of duplex grain structure." Fig. 6 of Segal shows duplex, non-uniform structures of tantalum produced by conventional thermo-mechanical processing techniques, such as those used in Klose (see the "Exemplified Embodiment"). Page 4 of the Office Action notes than Klose does not teach its tantalum product as including duplex non-uniform microstructure. Regardless, since Klose completely fails to recognize the significance of grain size distribution or maximum grain size, it is understandable that Klose fails to mention any non-uniformities in microstructure. Applicant provides adequate evidence to demonstrate that non-uniform microstructure may exist in the Klose tantalum and such showing is adequate to rebut the Office's allegation of inherent disclosure. Again, Applicant needs only to show a possibility that the Klose tantalum has a maximum grain size greater than 50 microns.

Accordingly, the Office Action does not provide substantial evidence sufficient to support the conclusion that the tantalum in Klose necessarily has a maximum grain size of 50 microns. Those of ordinary skill would not have expected the tantalum in Klose to have a maximum grain size of 50 microns. Those of ordinary skill instead recognize that Klose uses processing substantially different from the present specification. Those of ordinary skill instead recognize that tantalum suffers from non-uniformity of grain sizes and may exhibit a maximum grain size many times larger than the average grain size. At least for such reasons, Klose does not inherently disclose the claimed maximum grain size.

Applicant notes that it does not bear any burden to show that Klose necessarily discloses a maximum grain size of greater than 50 microns. Instead, the entire burden is upon the Office to show that Klose necessarily discloses a maximum grain size less than 50 microns. Applicant cites Segal merely to show that the Office's conclusions are inconsistent with the knowledge of those skilled in the art.

Page 5 of the Office Action alleges that no convincing linkage exists between the Klose tantalum and the Segal tantalum. However, the "Exemplified Embodiment" of Klose merely describes a general, conventional thermo-mechanical processing technique that uses upset forging, pressing into a sheet, cold mechanical working at room temperature, and recrystallization annealing. The Office Action has not identified any detailed

features of the Klose process that would distinguish it from the Segal conventional thermo-mechanical processing category. Accordingly, the linkage between Segal and Klose is more than adequate for the purposes upon which the Applicant relies.

Prima facie obviousness requires Klose to suggest that those of ordinary skill should make the claimed composition.

Klose does not disclose or suggest and the Office Action does not allege that it discloses or suggests the significance of a maximum grain size. A wide range of grain size distributions may be formed in the tantalum of Klose. However, Klose does not disclose or suggest any motivation to make tantalum alloy for spinnerets with the claimed maximum grain size. In the previous Response to April 21, 2005 Office Action, Applicants established a clear advantage to a maximum grain size in the context of sputtering, but no advantage appears to exist in the context of the Klose spinnerets. Accordingly, Klose cannot be considered to suggest that those of ordinary skill should make the claimed composition.

Contrary to the allegation on pages 5-6 of the Office Action that the intended use is not relevant, Applicant asserts that the Office must establish prima facie obviousness demonstrating that those of ordinary skill should make the claimed composition. The claimed composition includes a

maximum grain size less than 50 microns possessing a significant advantage in the context of sputtering. The Office Action has not identified any advantage that would motivate those of ordinary skill to produce the Klose tantalum spinnerets with a maximum grain size less than 50 microns.

Prima facie obviousness also requires that Klose reveal a reasonable expectation of success in making the claimed composition.

The present specification lists a specific method based upon described principles designed to produce a maximum grain size of 50 microns. Klose does not provide any comparable teaching and cannot be considered to provide a reasonable expectation of success. Any of the wide variety of grain size distributions known to those of ordinary skill can result from the teachings of Klose.

Claim 32 is patentable

Accordingly, Klose does not suggest that those of ordinary skill should make the claimed composition. Further, Klose does not reveal a reasonable expectation of success. Still further, Klose does not disclose or suggest every claim limitation since Klose does not inherently disclose a maximum tantalum grain size of less than 50 microns as claimed. At least for such

reasons, claim 32 is patentable over Klose. As may be appreciated from the deficiencies of Klose as applied to claim 32, claims 34-36, 38-40, 42-43, 47, 49-51, 53-55, 57-58 and 61 are also patentable.

Claims 68-75 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Klose (DD 284,905 A5) in view of Ohhashi (U.S. Patent No, 5,415,829). Applicant requests reconsideration.

Applicant herein incorporates by reference the remarks on pages 11-13 of the Response to April 21, 2005 Office Action establishing that Klose is nonanalogous art. Page 3 of the Office Action relies upon paragraph 7 of the previous Non-Final Office Action. However, paragraph 7 as well as page 8 of the previous Non-Final Office Action responsive to Applicant's prior assertions are deficient in attempting to establish that Klose is proper analogous art with regard to claims 68-75.

Namely, the Office Action does not establish that Klose is in the field of Applicant's endeavor. The Office Action does not establish that Klose is reasonably pertinent to the particular problem with which the inventor was concerned. The Office Action does not establish that Klose logically would have commended itself to an inventor's attention in considering the inventor's problem. The Office Action does not establish that the subject matter disclosed in Klose is relevant to the particular problem with which the inventor was involved. Accordingly, Klose cannot be considered to be analogous art.

Every Office Action should include a rebuttal of any arguments raised in the Applicant's reply. Distinct criteria, enumerated above, are required to establish that art is properly analogous with regard to Applicant's claims. To date, the Office Actions failed to provide a basis founded in substantial evidence that Klose is analogous art. If the next Office Action again fails to provide substantial evidence, then such Office Action will have failed to rebut every argument raised in the present Applicant's reply. If the next Office Action is a final rejection, then it will be improperly made final pursuant to MPEP §706.07 which requires final rejections to "be clearly developed to such an extent that Applicant may readily judge the advisability of an appeal." Accordingly, Applicant requests support of the Office's allegation with substantial evidence or withdrawal of the rejection.

Applicant herein establishes adequate reasons supporting patentability of all pending claims and requests their allowance in the next Office Action.

Respectfully submitted,

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